



(19)

(11) Publication number:

61134019 A

Generated Document.

## PATENT ABSTRACTS OF JAPAN

(21) Application number: 59256653

(51) Intl. Cl.: H01L 21/30

(22) Application date: 05.12.84

(30) Priority:	(71) Applicant: NEC CORP
(43) Date of application publication: 21.06.86	(72) Inventor: MATSUI SHINJI MORI KATSUMI ASATA SUSUMU
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## (54) FORMATION OF PATTERN

(57) Abstract:

**PURPOSE:** To simplify a process by directly etching silicon or an silicon nitride thin-film through electron-beam assisting etching.

**CONSTITUTION:** XeF<sub>2</sub>202 is introduced into a reaction-gas material housing chamber 201, and a substrate 205, to an upper layer thereof an Si thin-film is formed, is set to a sample base 204. An electron-beam projection system 210 and a sample chamber 208 are evacuated up to a high vacuum of approximately 10<sup>-5</sup> Torr or higher. A reaction gas material XeF<sub>2</sub> exists as a solid in atmospheric air but easily sublimates by an evacuation, and passes through a piping 203, and the inside of a by-sample chamber 206 is filled with XeF<sub>2</sub> as a reaction gas. The substrate 205, to the upper layer thereof the Si thin-film is shaped, is irradiated by electron beams focussed through a pin hole 207, and the Si thin-film at a position irradiated is etched.

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